

**Stockpile
report
to the
Congress
April 1979 - September 1979**



**federal emergency
management agency**

...The United States aims toward
achieving a sufficient stockpile of
strategic and critical materials...

---President Jimmy Carter

Decision Memorandum
September 27, 1977



FEDERAL EMERGENCY MANAGEMENT AGENCY

Washington, D.C. 20472

April 23, 1980

Honorable Walter F. Mondale
President of the Senate

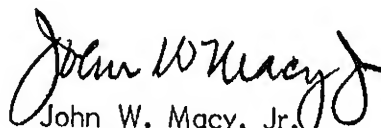
Honorable Thomas P. O'Neill, Jr.
Speaker of the House of Representatives

Sirs:

The Strategic and Critical Materials Stock Piling Act, as amended, provides that strategic and critical materials be stockpiled in the interest of national defense to preclude a costly and dangerous dependence upon foreign sources of supply in times of national emergency.

The President assigned stockpiling activities to the Director of the Federal Emergency Management Agency. The Office of Plans and Preparedness in the Agency is established to carry out the mandate of the Stock Piling Act. This Stockpile Report to the Congress for April-September 1979, together with a statistical supplement under separate cover, is submitted in accordance with section 11 of the Act.

Sincerely yours,


John W. Macy, Jr.
Director

HIGHLIGHTS

- Federal Emergency Management Agency Created
 - Functions of the Federal Preparedness Agency including stockpile policy transferred.
 - Stockpile maintenance and storage functions remain in GSA.
- Strategic and Critical Materials Stock Piling Act Revised
 - National Defense Stockpile Transaction Fund established to hold moneys from sale of materials.
 - Use of barter to acquire and dispose of stockpile materials to be encouraged.
 - Stockpile to serve only defense purposes.
 - Stockpile to cover needs of 3 years during an emergency.

TABLE 1

STRATEGIC AND CRITICAL MATERIALS INVENTORY
September 30, 1979

	<u>Market Value¹</u>
National Defense Stockpile	\$12,999,912,400
Reserved for Goals	\$ 6,673,661,900
Excess above Goals ²	\$ 6,326,250,500

	<u>Acquisition Cost</u>	<u>Market Value¹</u>
National Defense Stockpile ²	\$3,509,383,800	\$13,263,816,300
Defense Production Act Inventory	93,046,100	46,281,400
Total Inventory ²	<u>\$3,602,429,900</u>	<u>\$13,310,097,700</u>

¹ Market values are prices at which comparable materials are being traded, or in the absence of trading, values are estimates. They do not necessarily reflect the amount that would be realized at time of sale.

² "Excess above Goals" excludes unshipped sales; "Total Inventory" includes unshipped sales.

STOCK PILING ACT REVISED

On July 30, 1979, President Carter signed into law the Strategic and Critical Materials Stock Piling Revision Act of 1979. This is the first major revision of the stockpile act since 1946 when the original 1939 law was substantially rewritten.

After a lengthy review in the executive branch, a new stockpile planning guidance was announced in 1976. Based on war requirements for 3 years in support of the military, industrial and essential civilian needs of the Nation, this guidance resulted in new goals for strategic and critical materials. This policy was reaffirmed by President Carter in 1977, with priority given to requirements for the first planning year. During this period of executive review, the Congress was also examining stockpile planning. The Congress was particularly concerned that goals for strategic and critical stockpile materials not fluctuate frequently and that quantities be sufficient to sustain the country for 3 years of an emergency. In addition, the Congress wanted to strengthen its role in stockpile decisions. The revisions contained in this Act resulted from these executive and congressional reviews. The revised Act, implemented according to the President's policy guidance, will result in a restructured stockpile to meet defense needs of the 1980's.

Analysis of Act

Section I gives the short title of the Act: "Strategic and Critical Materials Stock Piling Act."

Purpose

Section 2 updates the previous language to clarify the intent of the Congress. The "military, industrial, and essential civilian needs of

the United States for national defense" are to be sustained by the stockpile. This inclusion of civilian needs existed from the beginning of stockpiling in the United States but was not specifically stated in the previous Act.

Section 3b(1) specifically states that the "purpose of the stockpile is to serve the interest of national defense only and is not to be used for economic or budgetary purposes." While the previous Act used the term "times of national emergency," there was no specific injunction about economic purposes. In interpreting the meaning of these provisions as they would affect Presidential releases of stockpile materials, the Armed Services Committees have indicated approval of releases in situations short of a national emergency, but for defense purposes only.

Presidential Authority and Guidelines

Section 3 contains additional principles that the President is to follow in determining the quality and quantity of stockpile materials. First, stockpiling should be sufficient to sustain the nation for a 3-year period. Second, all changes in goals must be sent in writing to the Committees on Armed Services, together with the reasons for revision, 30 days before the new goals become effective. This requirement is intended to discourage frequent goal changes. No specific guidance was given the President in previous law, but the procedures and policies in effect since 1976 are in accord with the requirements of the new Act.

Materials Constituting the National Defense Stockpile

Section 4 combines the three existing stockpiles into one National Defense Stockpile to simplify management. It should be noted,

however, that materials not transferred to the stockpile from the Defense Production Act inventory prior to the effective date of this new law remain separate. These materials are generally nonstockpile grade and are being sold.

Authority for Stockpile Operations

Section 5 requires that both acquisitions and disposals be authorized by law. Only disposals had required authorization previously. This change results in simultaneous consideration of both acquisitions and disposals by the same congressional committee. More effective congressional oversight will result. The disposal authorizations are to be listed by commodity and by quantity. Acquisitions will be authorized as a lump sum because of the market sensitivity of the commodity and quantity information. The congressional committees will be furnished the list of commodities and quantities for acquisition and would be notified in advance of any major deviations.

Stockpile Management

Because the reorganization involving the Federal Preparedness Agency was in progress, section 6 vests the stockpile management functions in the President. The reorganization plan forming the Federal Emergency Management Agency became effective July 15, 1979, through Executive Order 12148. The stockpile functions previously delegated to the Federal Preparedness Agency were thereby transferred to the Director of FEMA. After the Act was approved on July 30, Executive Order 12155 was issued to delegate the stockpile functions vested in the President by the revised Act. This Executive Order dated September 10, 1979, delegates management functions to the Administrator of General Services (GSA). Interim working arrangements place these activities in the Federal Property Resources Service, GSA, which had previously managed the stockpile. In its report the committee indicated a desire to be informed of any changes in management.

These management functions, as in the previous law, include buying and selling materials, storage, security, maintenance, rotation and refining or processing of materials. The revised Act, however, specifies management guidelines not previously given. Federal procurement regulations are to be followed when acquiring materials, and competitive negotiation procedures used when disposing of materials. In addition, disposals are to be made for domestic use to the maximum extent feasible. In the event that an exception to these rules occurs, the reasons are to be given in the semi-annual report. In addition, efforts are to be made to avoid undue disruption of the usual markets of producers, processors, and consumers in the buying and selling of materials and to protect the United States from avoidable loss. These latter injunctions were found in the original law, but applied specifically to disposals. In practice, however, stockpile materials were also acquired without market disruption. Another new feature is the authority to negotiate storage facility leases of up to 20 years length.

If the competitive procedures are waived or if foreign sales occur, 30 days advance notice is to be given the Armed Services Committees together with the reasons therefor. Notification of Congress is also required for disposal of material when rapid deterioration would result in loss to the Government. These reporting stipulations modify previous law to permit flexibility in stockpile management while giving Congress a voice in the decisions.

In subsection 6(c)(1) the user of barter in the acquisition or disposal of stockpile materials is encouraged. This provision in the Act is new, but a barter program using agricultural surpluses under the Commodity Credit Corporation Charter did result in acquisitions for the stockpile in the 1950-1960 period.

Special Disposal Authority of the President

Section 7 states the conditions under which stockpile materials can be released for their

intended purpose. These release conditions are the same as in the previous law, but the Congress has added report requirements. The Armed Services Committees are to be notified in writing of any release of material as soon as possible after the release decision is made. The Committees mentioned specifically in their reports that previous releases were made to keep defense production programs moving in conditions of short supply. The committees believe such releases are for the purpose of national defense and are appropriate even though the situation is short of a national emergency.

Materials Development and Research

Section 8 is similar to the previous act. Research and development is to be carried out to develop new domestic sources of materials, methods for using lower grade ores, and substitutes for strategic materials. These research activities are delegated by Executive Order to the Secretary of the Interior and the Secretary of Agriculture.

National Defense Stockpile Transaction Fund

Section 9 establishes a fund into which all stockpile moneys are to be placed. Prior to this revision, stockpile receipts from disposal sales went into the Treasury miscellaneous accounts. This separate fund clause requires that stockpile receipts be used only to acquire new materials or for transportation related to acquisition. Earmarking of receipts results in a more visible program. Because the materials in excess to defense needs are valued at over \$6 billion, sales receipts should balance the cost of acquisitions for several years. While an active restructuring program is taking place, the receipts are unlikely to remain in the fund for long periods of time. However, in the future acquisitions might not be needed so that moneys would not be expended. A "sunset" provision transferring unappropriated funds to the miscellaneous accounts of the

Treasury at the end of three fiscal years prevents tying up the moneys indefinitely. If the appropriation acts include such a provision, funds that have been appropriated for acquisitions remain available for 5 years.

Advisory Committees

Section 10 formalizes current management practice of seeking advice from experts outside government. The broad wording of the revision makes possible inclusion of experts from academia and from all parts of the business community. Previous wording limited committee membership to persons from industries concerned with stockpile materials. Activities of these committees are to be included in the stockpile report to the Congress.

Reports to Congress

Section 11 requires a report to Congress every 6 months and specifies what is to be included:

"(1) information with respect to foreign and domestic purchases of materials during the preceding 6-month period;

(2) information with respect to the acquisition and disposal of materials under this Act by barter ...during such period;

(3) a statement and explanation of the financial status of the National Defense Stockpile Transaction Fund and the anticipated appropriations to be made from the fund during the next fiscal year."

Release of budget information in advance of established release dates is not intended. The best estimates available are what is expected.

"(4) such other pertinent information on the administration of

this Act as will enable the Congress to evaluate the effectiveness of the program."

Other sections also specify information to be included such as the activities of advisory committees and any departures from standard management procedures. Goal revisions and the reasons therefor will be included as well as information previously given in the stockpile reports. Reporting requirements had been limited to a statement of foreign and domestic purchases and other pertinent information.

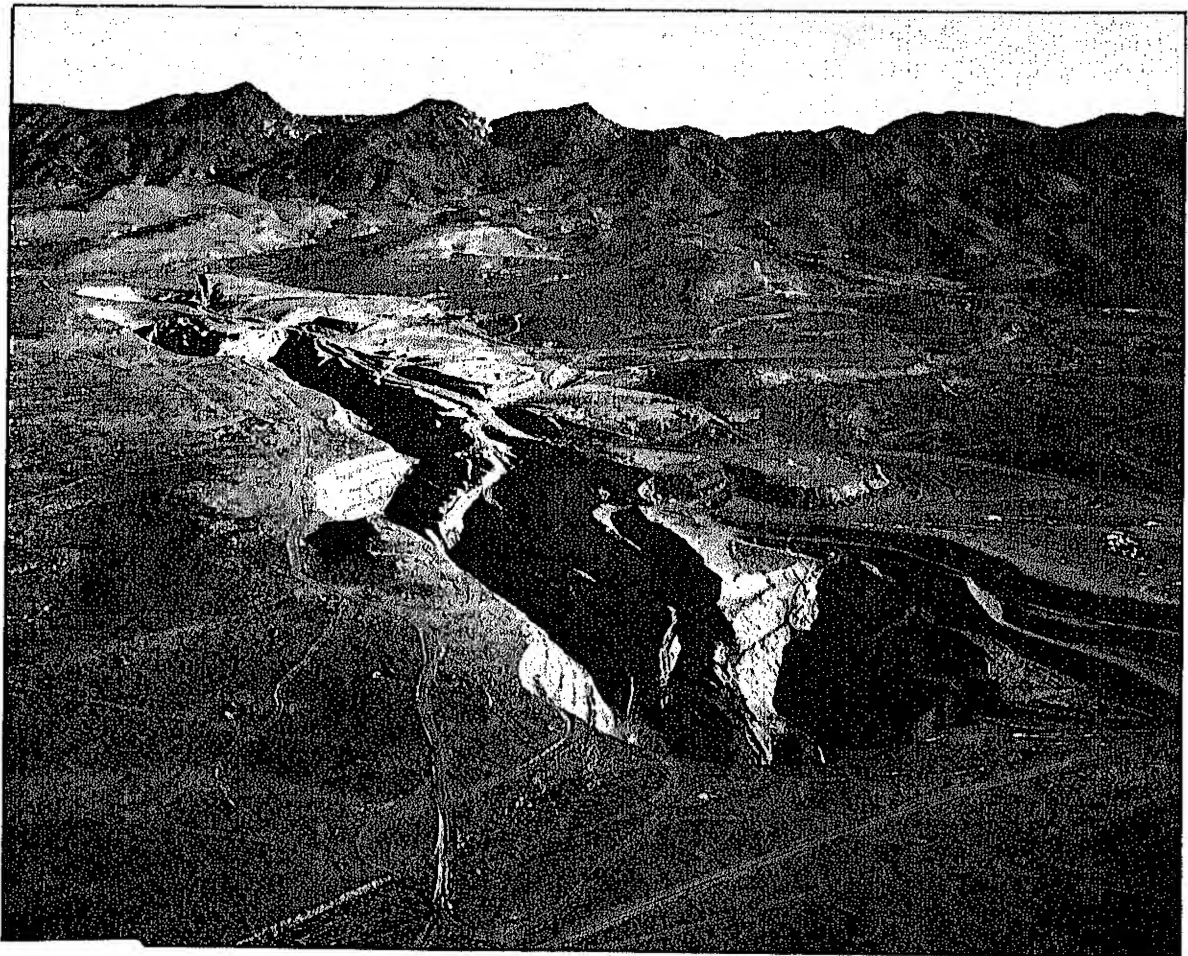
Definitions

Section 12 defines "strategic and critical materials" as materials that "(A) would be

needed to supply the military, industrial and essential civilian needs...during a national emergency, and (B) are not found or produced in the United States in sufficient quantities to meet such need." This formal inclusion of civilian needs puts present and past practice into the law.

Imports of Strategic and Critical Materials

Section 13 is section 10 of the previous Act renumbered. This states that if a strategic and critical material is produced in and can be imported from a communist country, then the material can be imported from any foreign country.



Open Pit Mine for Beryllium Ore in Utah

CONTINUING ACTIVITIES

The Stock Piling Act provides that a stock of strategic and critical materials be held to decrease dependence upon foreign sources in times of emergency. The provisions of the Act and the planning guidance announced by President Carter October 1, 1977, are the authorities for administering the program. Executive Order 12155 vests the primary responsibility for the stockpile program in the Director of the Federal Emergency Management Agency (FEMA). Within FEMA the Office of Plans and Preparedness has been assigned stockpile activities.

The Act and the President's guidance provide for a stockpile sufficient to cover U.S. needs during the first 3 years of a major war. It is assumed that significant austerity measures will be in place and that priority will be given to requirements for the first planning year.

Using these guidelines, stockpile goals are calculated. The goals are the difference between estimated supply and requirements for each strategic material. The goals announced October 1, 1976, remain in effect although they were being revised at the close of the report period.

When the stockpile inventory is compared against these goals, it is obvious that the stockpile is out of balance. Most of the materials now in inventory were acquired in the 1950's so it is not surprising that major restructuring is necessary to update the stockpile. Figure 1 shows the relationship of the value of materials in inventory compared with the value of those held for goals. The September 30, 1979, value of the stockpile materials was \$13.0 billion. Included was \$6.7 billion reserved for goals.

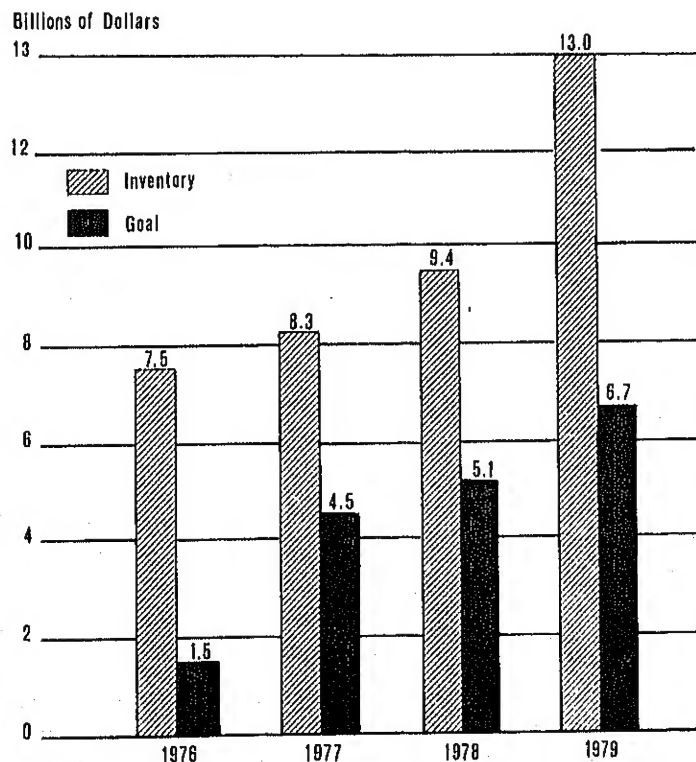


Figure 1
Relationship of Materials Held in Inventory to Materials
Held for Objectives/Goals by Fiscal Year

As shown in Figure 2, the 93 materials in the stockpile are divided into three groups:

(1) 40 materials with inventory equal to or greater than the goals.

(2) 10 materials with inventory equal to goals by crediting.

"Crediting" involves pledging excesses available in other forms of the same material to the goal of the original material. Excesses used in crediting will not be sold even if disposal authority exists.

(3) 43 materials with inventory less than the goal.

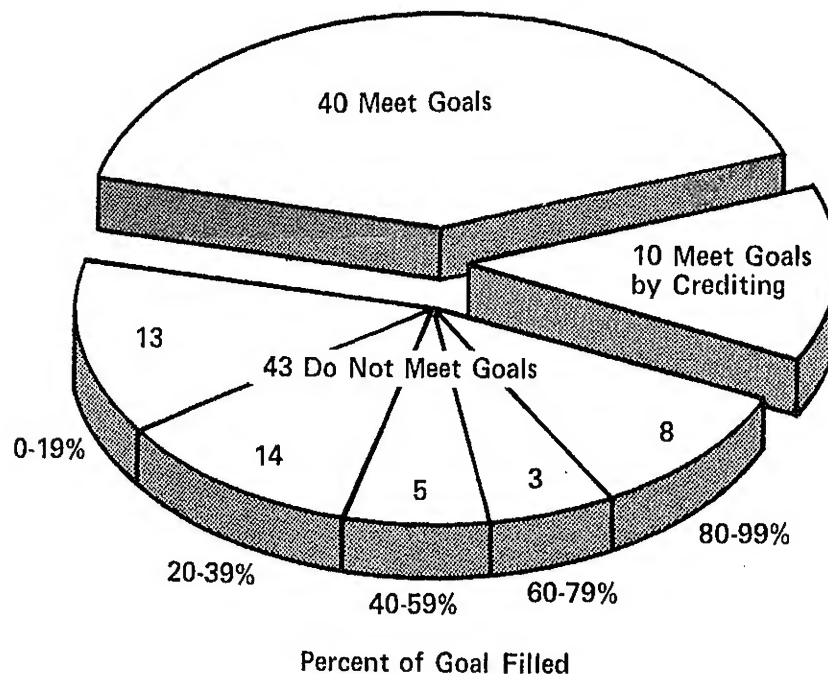


Figure 2
Status of Inventories of 93 Materials in Stockpile Toward Meeting Goals

Annual Materials Plan

Presidential guidance includes a planning process for restructuring the stockpile through the Annual Materials Plan (AMP). The AMP is a list of stockpile materials for acquisition and disposal developed each year through an interagency committee chaired by FEMA. The agencies represented on the Annual Materials Plan Steering Committee are the Departments of Defense, Commerce, the

Interior, State, Treasury, the Central Intelligence Agency, and the General Services Administration.

The AMP process begins when the National Defense Stockpile Policy Division of FEMA gives a list of goals, deficits, excesses, and priorities to the Market and Technical Services Division of the Federal Property Resources Service, GSA. The materials proposed for purchase and/or sale are ranked

according to defense need priority. The Market and Technical Services Division assesses the market for these materials and determines the quantities that could be bought and/or sold without market disruption. After these market constraints are added, the list is given to the AMP subcommittees for review.

The Strategic Implications Subcommittee, chaired by the Department of Defense, determines if the materials will be affected by changes in defense requirements. The International Economic and Political Impacts Subcommittee, chaired by the Department of State, determines the impact of AMP proposals on international producers, trade agreements, and foreign producer countries. The Market Impact Subcommittee, chaired by the Department of Commerce, examines the effect on commodity markets and develops the market impact statements. The Economic and Budgetary Impact Subcommittee, chaired by FEMA, examines the revenue and cost projections of the AMP proposal.

After the recommendations from the subcommittees have been incorporated, the AMP is reviewed by all member agencies. Upon inclusion of approved revisions, the Director of FEMA submits the AMP to the National Security Council and simultaneously provides a copy to the Office of Management and Budget. Any further revisions are made jointly by the National Security Council, the Office of Management and Budget and the Federal Emergency Management Agency.

The FY 1980 AMP was submitted to the Congress as a part of the President's budget. The proposal called for a balanced program to purchase 18 materials and sell 12 valued at about \$177 million. Three of the 12 proposed disposals would require new congressional authorization.

Steering Committee Activities

The AMP Steering Committee met during the report period to review the status of the 1980 AMP legislation before the Congress. Also discussed was the effect of the reorganization forming FEMA. None of the subcommittees met during the report period.

Legislative Proposals

The legislation to authorize acquisitions and disposals proposed in the AMP remained before the Congress at the end of the report period. An appropriation request for \$177 million to purchase 18 materials for the stockpile was considered by the Appropriations Subcommittees on the Treasury, Postal Service and General Government. After hearings in March, the appropriation was denied without prejudice pending action to revise the stockpile act. Legislation (H.R. 4665) to authorize purchase of \$513 million of silver failed to pass the subcommittee on July 31.

Bills to authorize disposal of stockpile materials were considered by both houses of the Congress during the report period. On the House side, three major disposal bills were considered:

(1) H.R. 595, a bill to authorize disposal of 35,000 long tons of tin (the AMP proposal was 10,000 long tons), passed the House on April 3. This amount of tin would be a 3-year marketing program and include a 5,000 long ton contribution to the International Tin Buffer Stock.

On the Senate side, bills to implement the AMP proposals were combined to form an amended version of H.R. 595. This bill would authorize the sale of 35,000 long tons of tin,

1.5 million carats of diamonds, and 15 million troy ounces of silver. The Senate Armed Services Committee passed H.R. 595 as amended on September 14. After the close of the

report period, P.L. 96-175 was approved authorizing the sale of 35,000 long tons of tin and 3 million carats of diamond and \$237 million for acquisition of stockpile materials.

**Summary of Legislation
April - September, 1979**

<u>Material</u>	<u>House</u>	<u>Senate</u>
Tin	35,000 long tons Passed House April 3	35,000 long tons Passed Committee Sept. 14
Diamonds	5.5 million carats Passed House Sept. 24	1.5 million carats Passed Committee Sept. 14
Silver	15 million troy ounces Failed in Committee Sept. 11	15 million troy ounces Passed Committee Sept. 14

Revision of Data

President Carter's planning guidance calls for a stockpile capable of supporting the United States military, industrial, and essential civilian needs during a major war. It is assumed that prior industrial mobilization with attendant increased use of raw materials will occur, and that austerity measures will be in effect. This guidance also provides for a stockpile to sustain the Nation for 3 years of a war with highest priority to be given to readiness for the first war year. These guidelines are incorporated into the economic model used to estimate stockpile goals. Because technology, military needs, and a variety of other conditions are changing, it is important to update the data annually.

During the report period, the Department of Defense provided projections of defense wartime requirements for stockpile materials. The probable wartime accessibility of import

sources and shipping losses were examined as well as the probable nature, duration, and location of a possible conflict. Data covering the location, production, and/or capacity of mining and milling facilities for stockpile commodities was provided by the Bureau of Mines. The Commerce Department furnished updated consumption figures for 50 materials, 1977 supply data for 12 materials, and 1977 domestic production capacity for 11 materials. The supply and capacity data provided projections for 1981 through 1983.

The Bureau of Mines publishes "Mineral Commodity Profiles" reports which provide an analysis and review of current and developing events that could affect the supply/demand situation of materials. Technological developments within specific industries and long-range forecasts to 1985 and 2000 are also included in these reports. Mineral Commodity Profiles of stockpile materials issued since April 1979 include: boron, cesium, rare

earths, nickel, molybdenum, diamond-industrial, antimony, rhenium, tantalum, and manganese.

Research and Development

An alternative to stockpiling is the development of domestic sources of supply for strategic and critical materials. Additions to domestic supply make possible a decrease in the stockpile goal for that material. Therefore, research of a scientific, technologic and/or economic nature to develop domestic production or substitutes is a continuing part of the stockpile program. Mandated under section 8 of the Act, government research is primarily carried on by the Departments of the Interior, Commerce, and Agriculture.

Within the Department of the Interior, the Bureau of Mines in conjunction with the Geological Survey maintains resource inventories which include assessments of mineral land. The best information regarding the type, quality, and composition of mineral rock is obtained by diamond core drilling. This mineral exploration method is both costly and time consuming because a significant amount of nonproductive time is spent pulling the rods out of the hole to inspect or change the bit. A major breakthrough in diamond core drilling would be the ability to replace the core bit without pulling the rods out of the hole. The Bureau of Mines through contract research has developed and is field-testing a down-the-hole retractable core bit. The retractable bit has drilled successfully in a hard, fractured quartz monzonite porphyry in Colorado. Additional field testing will continue through August, 1980.

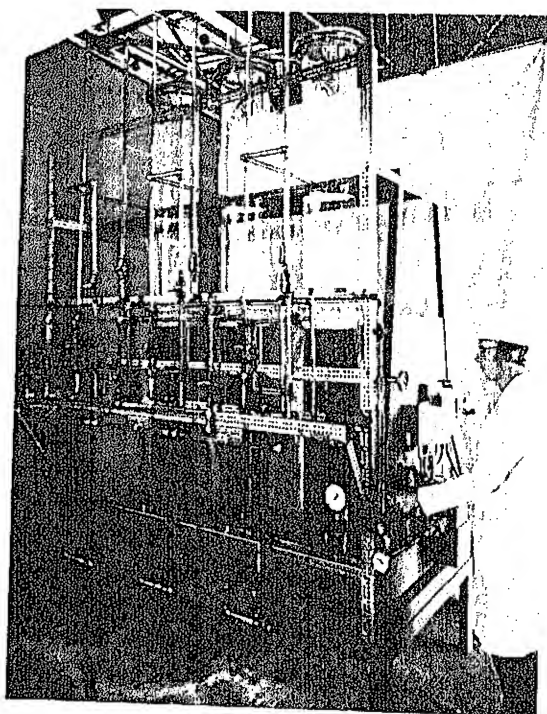
Specific evaluations of mineral deposits by the Bureau of Mines often involve strategic and critical materials. During the report period, laterite soils in Northern California were evaluated for nickel, cobalt, copper, and chromium content. Several hundred auger and

bit samples from these laterite soils were analyzed by various tonnage and grade combinations. Although cobalt prices have risen nearly four-fold in a little over a year, these low-grade deposits can not be economically developed using standard techniques. However, a process has been developed and tested under laboratory conditions that separates nickel, cobalt, and copper by solvent extraction. The individual metals are recovered by electrowinning. A preliminary cost evaluation indicates that the process has commercial possibilities. A pilot plant is being built to provide the information needed for commercial adoption of the process.

The United States imports more than 90 percent of the chromium it needs. About 20 percent of this strategic material is used for refractory furnace linings in steel, copper, cement, and glass manufacturing. With few exceptions, used refractories are discarded as waste. The Bureau of Mines has applied its minerals beneficiating expertise to recover chromite from used steel-making and copper-making refractories. A process consisting of hand sorting, crushing, sizing, and magnetic separation has been developed. The refractory properties of brick made from recycled chromite from steel furnaces has proven to be as good or better than the original brick. Test samples from steel-making furnaces have been made into full size bricks for ceramic evaluation. Reclaimed chromite from copper-making furnaces also showed refractory properties approaching those of the steel furnace refractories. Adoption of this recycling process would lessen our import requirements for chromium.

Domestic tungsten production now meets less than one half of this nation's consumption requirements. Because demand for this heat-resistant metal is increasing, the United States will become more dependent upon imports unless new domestic ore deposits are found or alternative resources utilized. One potential domestic resource is the brines of Searles

Lake in California which contain an estimated 135 million pounds of dissolved tungsten. Ability to recover tungsten from this resource could double our known domestic reserves. Previous efforts to recover this tungsten involved chemical preprocessing of the brine which was expensive. The Bureau of Mines initiated research to improve efficiency of tungsten recovery from this low-grade resource without first chemically altering the



Ion Exchange Columns for Extraction of Tungsten from Searles Lake Brine.

brine. Current research demonstrates that tungsten can be absorbed by ion-exchange resin and stripped away using a weak alkaline solution. Tungsten is recovered either as a marketable iron-tungsten product or as tungstic acid concentrate. An expanded-scale field testing unit at Searles Lake is now appraising the economic feasibility of this process.

Although smelting from galena concentrates is an efficient lead producing process, pollution control is costly. Scrubbers to lower sulfur dioxide emissions and devices to protect

workers from toxic lead fumes are particularly high cost. This has resulted in research to perfect methods other than smelting for producing lead. A leach-electrolysis process is under investigation by the Bureau of Mines. No sulfur dioxide is released during this processing, and lead fumes are minimized. After successful bench-scale testing, a larger unit was built to test factors that could not be investigated adequately on a small scale. This development unit is capable of treating 750 pounds of galena concentrate per day. It is being operated for 10-day continuous runs to study the corrosion resistance of construction materials and the buildup of impurities in the leach solution and in the electrolytic cell. Several 10-day continuous runs have demonstrated that the process produces high-purity lead with high yields. Workers' exposure to lead in all its forms is being evaluated. Blood samples taken from operating personnel showed lead levels well below the new OSHA standard. Air samples in the work area contain lead levels less than one-third of new OSHA permissible exposure limits. These positive test results are being verified by additional test runs.

Nearly all rutile used in the United States now is imported. This raw material for the production of titanium metal comes mainly from Australia, although production has recently begun in South Africa and in Sierra Leone. Domestic production of rutile is from the recovery of ilmenite from sand deposits and is therefore tied to production and to demand for ilmenite. No other useable rutile resources were known in the United States. Study and analysis of rutile in copper deposits by Geological Survey scientists indicates that domestic rutile resources may be greater than previously thought.

Copper ore from the Bingham, Utah, deposit contains about 0.3 weight percent rutile, and the deposit at San Manuel, Arizona, based on initial studies, contains about 0.6 weight percent rutile. Potentially recoverable rutile is

present throughout the ore found in Bingham and in San Manuel. The ore processed at Bingham each year contains about 100,000 metric tons of rutile. The ore in place there contains approximately 4 million metric tons of rutile, and the tailings already produced contain roughly an equal quantity. If half of this rutile could be recovered, Bingham could supply 20 percent of the current U.S. rutile consumption. The total quantity of rutile in the ore processed each year at San Manuel is about the same as that at Bingham, but only about 1 million metric tons of rutile is present in stocks of tailings there. Estimates have not yet been made of the rutile resources of other porphyry copper deposits. By-product recovery of rutile, though difficult and expensive, would decrease our dependence on imported rutile without any increase in mining activity.

The supply of natural hevea rubber and the supply of petroleum (the raw material for synthetic rubber) are dependent upon import sources which may not be available in time of war. In addition, the United Nations Economic and Social Commission for Asia and the Pacific predicts that by 1990 the world's supply of natural rubber will be almost 22 percent short of demand. The guayule plant which is native to the southwestern part of the United States produces a natural latex. The successful commercialization of the guayule plant for production of natural rubber in the United States would mean a transition from import dependence to self reliance for natural rubber and result in a substantial decrease in the stockpile goal. Under the Native Latex Commercialization and Economic Development Act of 1978, a commission on guayule rubber research and development has been established to accelerate development of the guayule rubber industry in the United States. This is a potentially important industry for the security of the Nation and for the economic development of the southwest.



Technically Specified Rubber
Which May Be Acquired for Stockpile

In addition to this Department of Agriculture effort to develop guayule rubber production, the use of guayule rubber in aircraft tires has been evaluated by the Department of Defense. Nine A-7 aircraft main landing gear tires were retreaded with guayule rubber. One tire was destructively tested in accordance with military specifications. Its physical properties compared favorably with qualified A-7 rebuilt tires. Another tire was dynamometer tested, and successfully completed the required 50 taxi/takeoffs, 50 landing/taxis, 15 catapult simulations, and 60 camber cycle tests. Guayule rubber, therefore, appears to be an acceptable substitute for hevea rubber on Navy rebuilt A-7 aircraft main landing gear tires.

Purchase specifications and special instructions were drafted by the Department of Commerce for guayule rubber and for technically specified hevea rubber. These documents were forwarded to FEMA with the recommendation that test quantities be acquired to evaluate storability of this rubber.

Management

The stockpile management functions in section 6 of the Act were delegated by Executive Order 12155 to the Administrator of General Services. The Office of Property Management and the Office of Stockpile Disposal of the Federal Property Resources Service in the General Services Administration (GSA) are assigned stockpile activities. The storage, inspection, maintenance, and security of materials is assigned to the Office of Property Management. Purchases, sales and market analysis functions are in the Office of Stockpile Disposal. Interim working arrangements between GSA and the Federal Emergency Management Agency are operating during the transition period.

The Office of Stockpile Disposal has developed a 5-year planning program for both disposals and acquisitions which will follow the new management guidelines contained in the Act. Disposals of excess materials will be scheduled at a rate to insure maximum revenue to the Government without market disruption. The sales receipts will be placed in the National Defense Stockpile Transaction Fund to provide moneys for acquisitions and related transportation costs. As recommended by the Armed Services Committee, a balanced pattern of purchases and sales will be developed to minimize taxpayer burden, and the rate of acquisition set to minimize market disruption. These rates will be continuously monitored and adjusted to reflect market changes as appropriate. Priority will be given to materials most critical to defense needs as developed through the AMP process.

During the report period, a management information system was initiated to place all management records on the computer. This system now maintains the physical inventory records for stockpile materials. The location, quality, quantity, analytical data, goal, and amount held for goal are included in the inventory information as well as original

acquisition cost. Finance records for the National Defense Transaction Fund are also being entered into the system. This automated management information system will improve efficiency of stockpile management and provide up-to-date inventory records for use in the event of a national emergency.

Purchases, Sales and Barter

No materials were acquired during the report period, and no barter arrangements were made.

Stockpile transactions followed the preferred form as provided in the Act but did include some disposals for export. Sales of approximately \$31.3 million took place from the National Defense Stockpile. There were sales of \$5.4 million from the Defense Production Act Inventory. As shown in Table 2, the major sales by value were of industrial diamond crushing bort, quartz crystals, tungsten ores and concentrates, and the vegetable tannins.

Sales of the listed materials were made for industrial use except for 178,214 pounds of tungsten ores that went to the U.S. Army Armament Research and Development Center. Tungsten ores and concentrates sold included 2,135,648 pounds for domestic use and 1,125,711 pounds for export. The sales of quebracho vegetable tannins included a developmental quantity purchased by a French firm. This quebracho will be used in an industrial test to determine the feasibility of reprocessing stockpile quebracho material using idle chestnut tannin processing capacity. Export sales of tannin totaled 36 long tons during the report period.

The Interagency Committee for Stockpile Purchase Specifications and Special Instructions, chaired by the Department of Commerce, revises these documents on a continuing basis. Specifications and instructions for

materials proposed for either acquisition or disposal are given priority. The committee reviewed purchase specifications and special instructions for antimony metal, antimony sulphide ore and concentrates, bismuth, quartz crystals, talc block, talc lump, tin, and silver. Drafts of these documents were for-

warded to FEMA for approval during the report period. Special studies are underway by the Department of Commerce to determine the feasibility of stockpiling two other materials currently not included on the list of strategic and critical materials—jewel bearing related items and sisal baler and binder twine.

TABLE 2
DISPOSAL OF NATIONAL DEFENSE STOCKPILE MATERIALS
APRIL 1 - SEPTEMBER 30, 1979

Material	Unit	Quantity Sold	Value (Dollars)	Balance of Disposal Authorization Quantity
Aluminum Oxide, Fused Crude ¹	ST	(493)	(66,516)	3,100
Asbestos, Amosite	ST	-	-	16,242
Diamond, Industrial Crushing Bort	KT	1,087,085	4,806,993	683,588
Manganese Dioxide, Battery, Natural	SDT	100	8,500	126,034
Manganese Ore, Metallurgical Grade	SDT	-	-	711,627
Mica, Muscovite Splittings	LB	-	6,360	2,548,929
Mica, Phlogopite Splittings	LB	-	-	1,857,275
Quartz Crystals	LB	130,556	1,058,715	2,004,027
Rare Earth Oxide	SDT	1,023	862,042	506
Talc, Ground	ST	1,261	6,000	988
Thorium Nitrate	LB	13,000	29,250	5,343,271
Tungsten Ores & Concentrates ²	LB W	2,788,411	22,916,132	52,353,806
Vegetable Tannin - Chestnut	LT	455	242,323	8,258
Vegetable Tannin - Quebracho	LT	2,814	1,471,215	99,370
TOTAL			\$31,341,014	

¹ Contract was cancelled during report period.

² In addition, 651,162 LB W valued at \$5,386,009, was sold from the Defense Production Act Inventory.

Advice was also given FEMA on the upgrading of beryl ore now in the stockpile. The Defense Department is evaluating its need for beryllium to determine the feasibility of converting the ore into beryllium metal vacuum cast billets. The proposed upgrading program would accomplish the conversion over a 5-year period at a \$11 million annual cost. Barter arrangements for payment are being considered.

Releases - Suspension of Sales

The Department of Defense is reviewing defense requirements for natural quartz crystals. During this period of reassessment, all sales of natural quartz crystals have been suspended. The development of cultured quartz had resulted in substitution for the natural quartz in most uses. However, the military has expressed concern that in some defense uses substitution of cultured quartz would lower performance. Until new goals based on revised defense data can be computed, sales will remain suspended.

A shortage of chrysotile asbestos fibers has reached serious proportions within national defense programs. The Defense Department is preparing documentation to request a stockpile release of this commodity. Laboratory

testing of stockpile chrysotile asbestos in storage has been authorized to determine which lots would qualify for particular project applications.

Stockpile Transaction Fund

The Office of Administration of GSA has taken the necessary actions to implement section 9 of the Act which established in the Treasury of the United States a National Defense Stockpile Transaction Fund. Control mechanisms in the accounting system will identify the fiscal year in which receipts from the sale of stockpile materials are placed in the fund. This will assure compliance with the "sunset clause" that "...such moneys shall remain in the fund until appropriated or until the end of the third fiscal year following the fiscal year in which they are received." Any moneys that have not been appropriated after the end of the third fiscal year will be transferred to miscellaneous receipts of the Treasury. Appropriated moneys will be disbursed in the order in which they were covered into the fund.

Another control feature assures that moneys appropriated for acquisition of materials and related transportation remain available for a period of 5 fiscal years as specified in section 9.



National Defense Stockpile Depot
Scotia, New York

STOCKPILE INVENTORY

The National Defense Stockpile total inventory as given in Table 3 excludes amounts that were sold but not shipped from government depots to the purchasers. In the Statistical Supplement the inventory is listed as "Total Inventory in Storage" with a separate line for "Unshipped Sales." In addition, the Table 3 inventory combines stockpile and nonstockpile grade materials, while separate lines can be found for each type in the Statistical Supplement. The nonstockpile grade materials were acquired by transfer of government-owned surpluses after World War II or through Defense Production Act purchase programs. In addition, some materials were of stockpile grade when acquired, but no longer qualify because of changes in industry practices. In some cases nonstockpile grade material is temporarily credited toward goals.

Market values are prices at which comparable materials are being traded, or in the absence of trading, values are estimates. They are not necessarily the amount that would be realized if the material were sold.

For some materials where a goal deficit occurs, the excess of another material is held to offset the shortage as indicated in footnotes "a" through "i" at the end of the table. The term "offset" means allocating one form of a material for an equivalent amount of another form.

Materials are grouped by families, and a summary line for each basic family group is included to enable comparisons. The materials have been grouped in each family according to their status as raw material, semifinished products or finished products containing the same common ingredient. The values shown in the summary line for each family group are expressed in the basic unit common to all members of the group. In all but three cases this basic unit is the metal equivalent for each form. There is a different conversion factor for each form because each requires different technology and incurs different conversion losses. The factors used for converting materials and the calculation procedure are in Appendix 2.

TABLE 3
NATIONAL DEFENSE STOCKPILE INVENTORY OF STRATEGIC AND CRITICAL MATERIALS

September 30, 1979

Commodity	Unit	Goal	Total Inventory	Market Value (Millions of Dollars)	After Crediting Offset	
					Excess	Deficit
Aluminum Metal	ST AL	6,095,849	3,444,064			2,651,785
1. Alumina	ST	11,532,000	0	0	0	5,117,992 ^a
2. Aluminum	ST	0	1,733	2.1	0 ^a	0
3. Bauxite, Metal Grade, Jamaica Type	LDT	523,000	8,858,881	256.9	0 ^a	0
4. Bauxite, Metal Grade, Surinam Type	LDT	0	5,299,597	180.2	0 ^a	0
Aluminum Oxide, Abrasive Grain	ST	200,472	263,292		62,820	
5. Aluminum Oxide, Abrasive Grain ...	ST	75,000	50,905	39.7	0	0 ^b
6. Aluminum Oxide, Fused, Crude	ST	147,615	249,867	45.1	73,904 ^b	0
7. Antimony	ST	20,130	40,730	157.9	20,600	0
8. Asbestos, Amosite	ST	26,291	42,535	14.5	16,244	0
9. Asbestos, Chrysotile	ST	0	10,956	5.0	10,956	0
10. Bauxite, Refractory	LCT	2,083,000	174,599	30.7	0	1,908,401
Beryllium Metal	ST Be Metal	1,563	1,061			502
11. Beryl Ore (11% BeO)	ST	0	17,986	12.4	0 ^c	0
12. Beryllium Copper Master Alloy	ST	16,710	7,387	54.5	0	0 ^c
13. Beryllium Metal	ST	895	229	55.0	0	502 ^c
14. Bismuth	LB	771,000	2,081,298	6.2	1,310,298	0
15. Cadmium	LB	24,701,000	6,328,736	15.8	0	18,372,264
16. Castor Oil, Sebacic Acid	LB	0	5,009,697	6.8	5,009,697	0
Chemical and Metallurgical						
Chromium	ST Chrome Metal	1,235,865	1,173,230			62,635
17. Chromite, Chemical Grade Ore	SdT	734,000	242,413	15.0	0	491,587
18. Chromite, Metallurgical Grade Ore	SdT	2,550,000	2,488,043	196.0	0	0 ^d
19. Chromium, Ferro, High Carbon	ST	236,000	402,695	275.1	0 ^d	0
20. Chromium, Ferro, Low Carbon	ST	124,000	318,891	396.1	124,316 ^d	0
21. Chromium, Ferro, Silicon	ST	69,000	58,356	40.0	0	10,644
22. Chromium, Metal	ST	10,000	3,763	24.1	0	6,237
23. Chromite, Refractory Grade Ore ..	SdT	642,000	391,414	36.9	0	250,586
24. Cobalt	LB Co	85,415,000	40,802,393	1,020.0	0	44,612,607

TABLE 3

NATIONAL DEFENSE STOCKPILE INVENTORY OF STRATEGIC AND CRITICAL MATERIALS (Continued)

September, 30, 1979

Commodity	Unit	Goal	Total Inventory	Market Value (Millions of Dollars)	After Crediting Offset Excess	Deficit
Columbium Bearing Materials . . . LB Cb Metal		2,661,350	2,510,549			150,801
25. <i>Columbium Carbide Powder</i> LB Cb		0	21,372	0.6	0 ^e	0
26. <i>Columbium Concentrates</i> LB Cb		3,131,000	1,780,469	10.8	0	177,432 ^e
27. <i>Columbium, Ferro</i> LB Cb		0	930,911	5.2	0 ^e	0
28. <i>Columbium, Metal</i> LB Cb		0	44,851	1.8	0 ^e	0
29. Copper ST		1,299,000	29,049	55.1	0	1,269,951
30. Cordage Fibers, Abaca LB		24,000,000	0	0	0	24,000,000
31. Cordage Fibers, Sisal LB		114,000,000	0	0	0	114,000,000
Diamond, Industrial KT		20,533,000	44,397,050		24,044,050	
32. <i>Diamond Dies, Small</i> PC		0	25,473	1.1	25,473	0
33. <i>Diamond, Industrial, Crushing Bort</i> KT		14,974,000	24,376,324	95.6	9,402,324	0
34. <i>Diamond, Industrial, Stones</i> KT		5,559,000	20,007,990	355.1	14,448,990	0
35. Feathers and Down LB		6,494,000	0	0	0	6,494,000
36. Fluorspar, Acid Grade SDT		1,594,000	895,984	88.7	0	698,016
37. Fluorspar, Metallurgical Grade SDT		1,914,000	411,738	33.8	0	1,502,262
38. Graphite, Natural - Ceylon, Amorphous Lump ST		6,271	5,499	5.2	0	772
39. Graphite, Natural - Malagasy, Crystalline ST		20,472	17,913	11.1	0	2,559
40. Graphite, Natural - Other than Ceylon and Malagasy ST		34,748	2,802	0.5	0	31,946
41. Iodine LB		3,333,000	8,013,074	29.1	4,680,074	0
42. Jewel Bearings PC		224,623,000	67,506,227	37.5	0	157,116,773
43. Lead ST		865,000	601,056	697.2	0	263,944
Manganese, Dioxide, Battery Grade SDT		31,841	264,699		232,803	
44. <i>Manganese, Battery grade, Natural Ore</i> SDT		12,736	261,688	19.4	232,803 ^f	0
45. <i>Manganese, Battery Grade, Synthetic Dioxide</i> SDT		19,105	3,011	1.4	0	0 ^f
Chemical and Metallurgical Manganese STMn Metal		1,423,374	1,970,366		546,992	
46. <i>Manganese Ore, Chemical Grade</i> SDT		247,136	220,827	18.1	0	26,309

TABLE 3

NATIONAL DEFENSE STOCKPILE INVENTORY OF STRATEGIC AND CRITICAL MATERIALS (Continued)

September, 30, 1979

Commodity	Unit	Goal	Total Inventory	Market Value (Millions of Dollars)	After Crediting Offset Excess	Deficit
47. Manganese Ore, Metallurgical Grade	SDT	2,052,000	3,369,860	154.9	1,072,262 ^g	0
48. Manganese, Ferro, High Carbon	ST	439,000	599,764	262.4	160,764	0
49. Manganese, Ferro, Low Carbon	ST	0	0	0	0	0
50. Manganese, Ferro, Medium Carbon	ST	99,000	28,921	22.0	0	0 ^g
51. Manganese, Ferro, Silicon	ST	81,000	23,574	11.6	0	0 ^g
52. Manganese Metal, Electrolytic	ST	15,000	14,171	16.4	0	0 ^g
53. Mercury	FL	54,004	200,061	63.0	146,057	0
54. Mica, Muscovite Block, Stained and Better	LB	6,188,000	5,588,362	27.9	0	599,638
55. Mica, Muscovite Film, First and Second Qualities	LB	90,000	1,279,006	15.0	1,189,006	0
56. Mica, Muscovite Splittings	LB	12,631,000	21,894,297	43.8	9,263,297	0
57. Mica, Phlogopite Block	LB	206,064	130,745	.28	0	75,319
58. Mica, Phlogopite Splittings	LB	932,000	2,880,707	5.8	1,948,707	0
Molybdenum	LB Mo	0	0		0	0
59. Molybdenum Disulphide	LB Mo	0	0	0	0	0
60. Molybdenum, Ferro	LB Mo	0	0	0	0	0
61. Nickel	ST Ni+Co	204,335	0	0	0	204,335
Opium	AMA LB	75,000	71,303			3,697
62. Opium, Gum	AMA LB	0	31,795	8.7	0 ^h	0
63. Opium, Salt	AMA LB	75,000	39,508	28.7	0	3,697 ^h
64. Platinum Group Metals, Iridium	TrOz	97,761	16,990	5.1	0	80,771
65. Platinum Group Metals, Palladium	TrOz	2,450,000	1,255,003	169.4	0	1,194,997
66. Platinum Group Metals, Platinum	TrOz	1,314,000	452,640	172.0	0	861,360
67. Pyrethrum	LB	377,851	0	0	0	377,851
68. Quartz Crystals	LB	0	2,482,667	14.9	2,482,667	0
69. Quinidine	AvOz	6,841,000	1,800,343	8.4	0	5,040,657
70. Quinine	AvOz	3,045,000	3,246,161	11.2	201,161	0

TABLE 3

NATIONAL DEFENSE STOCKPILE INVENTORY OF STRATEGIC AND CRITICAL MATERIALS (Continued)

September, 30, 1979

Commodity	Unit	Goal	Total Inventory	Market Value (Millions of Dollars)	After Crediting Offset	
					Excess	Deficit
71. Rubber	LT	513,134	119,202	176.2	0	393,932
72. Rutile	SDT	173,928	39,186	10.6	0	134,742
73. Sapphire and Ruby	KT	0	16,305,502	0.2	16,305,502	0
74. Shellac	LB	8,529,000	0	0	0	8,529,000
75. Silicon Carbide, Crude	ST	306,628	80,540	36.2	0	226,088
76. Silver (Fine)	TrOz	0	139,500,000	2,350.6	139,500,000	0
77. Talc, Steatite Block and Lump	ST	104	1,092	0.4	988	0
Tantalum Bearing Materials ...	LB Ta Metal	7,159,339	2,392,072			4,767,267
78. Tantalum Carbide Powder	LB Ta	889,000	28,688	4.6	0	860,312
79. Tantalum Metal	LB Ta	1,650,000	201,133	38.7	0	1,448,867
80. Tantalum Minerals	LB Ta	5,452,000	2,551,457	272.6	0	2,900,543
81. Thorium Nitrate	LB	1,800,000	7,158,702	19.7	5,358,702	0
82. Tin	LT	32,499	200,480	3,156.4	167,981	0
83. Titanium Sponge	ST	131,503	32,331	255.2	0	99,172
Tungsten Bearing Materials ...	LB W Metal	41,412,936	87,054,357		445,641,421	
84. Tungsten Carbide Powder	LB W	12,845,000	2,032,942	29.2	0	0 ⁱ
85. Tungsten, Ferro	LB W	17,769,000	2,025,361	23.4	0	0 ⁱ
86. Tungsten, Metal Powder	LB W	3,290,000	1,898,911	25.7	0	0 ⁱ
87. Tungsten Ores and Concentrates	LB W	8,823,000	94,248,513	819.0	53,633,506 ¹	0
Vanadium	ST V Metal	12,671	541			12,130
88. Vanadium, Ferro	ST V	10,095	0	0	0	10,095
89. Vanadium Pentoxide	ST V	2,576	541	5.3	0	2,035
90. Vegetable Tannin Extract, Chestnut	LT	6,942	18,528	10.9	11,586	0
91. Vegetable Tannin Extract, Quebracho	LT	37,998	151,558	81.8	113,560	0
92. Vegetable Tannin Extract, Wattle	LT	20,208	16,397	9.2	0	3,811
93. Zinc	ST	1,313,000	375,947	268.8	0	937,053

OFFSETS

All conversion and processing loss factors, where applicable, have been taken from the Office of Emergency Planning Strategic and Critical Materials Reference Data Booklet, dated November 1, 1966.

^a8,335,881 LDT of surplus bauxite, metal grade, Jamaica type, were used to offset 3,715,219 ST of alumina shortfall. 5,299,597 LDT of surplus bauxite, metal grade, Surinam type, were used to offset an additional 2,695,444 ST of alumina shortfall. 1,733 ST of surplus aluminum metal were used to offset another 3,345 ST of alumina shortfall.

^b28,348 ST of surplus aluminum oxide, fused, crude, were used to offset a 24,095 ST shortfall in aluminum oxide, abrasive grain.

^c12,120 ST of surplus beryl ore (11% BeO) were used to offset 100% of the 9,323 ST shortfall of the beryllium copper master alloy. An additional 5,866 ST of surplus beryl ore were used to offset 164 ST of the beryllium metal shortfall.

^d166,695 ST of surplus chromium, ferro, high carbon, were used to offset 416,738 SDT of the chromite, metallurgical grade ore, shortfall. Also 70,575 ST of surplus chromium, ferro, low carbon, were used to offset an additional 176,438 SDT shortfall of the chromite, metallurgical grade ore.

^e21,372 LB of surplus columbium carbide powder were used to offset 25,144 LB of columbium concentrates shortfall. 44,851 LB of surplus columbium, metal, were used to offset 52,766 LB of columbium concentrates shortfall. 930,911 LB of surplus columbium, ferro, were used to offset 1,095,189 LB of columbium concentrates shortfall.

^f16,094 SDT of surplus manganese, battery grade, natural ore were used to offset 16,094 SDT of manganese, battery grade, synthetic dioxide, shortfall on a 1/1 basis.

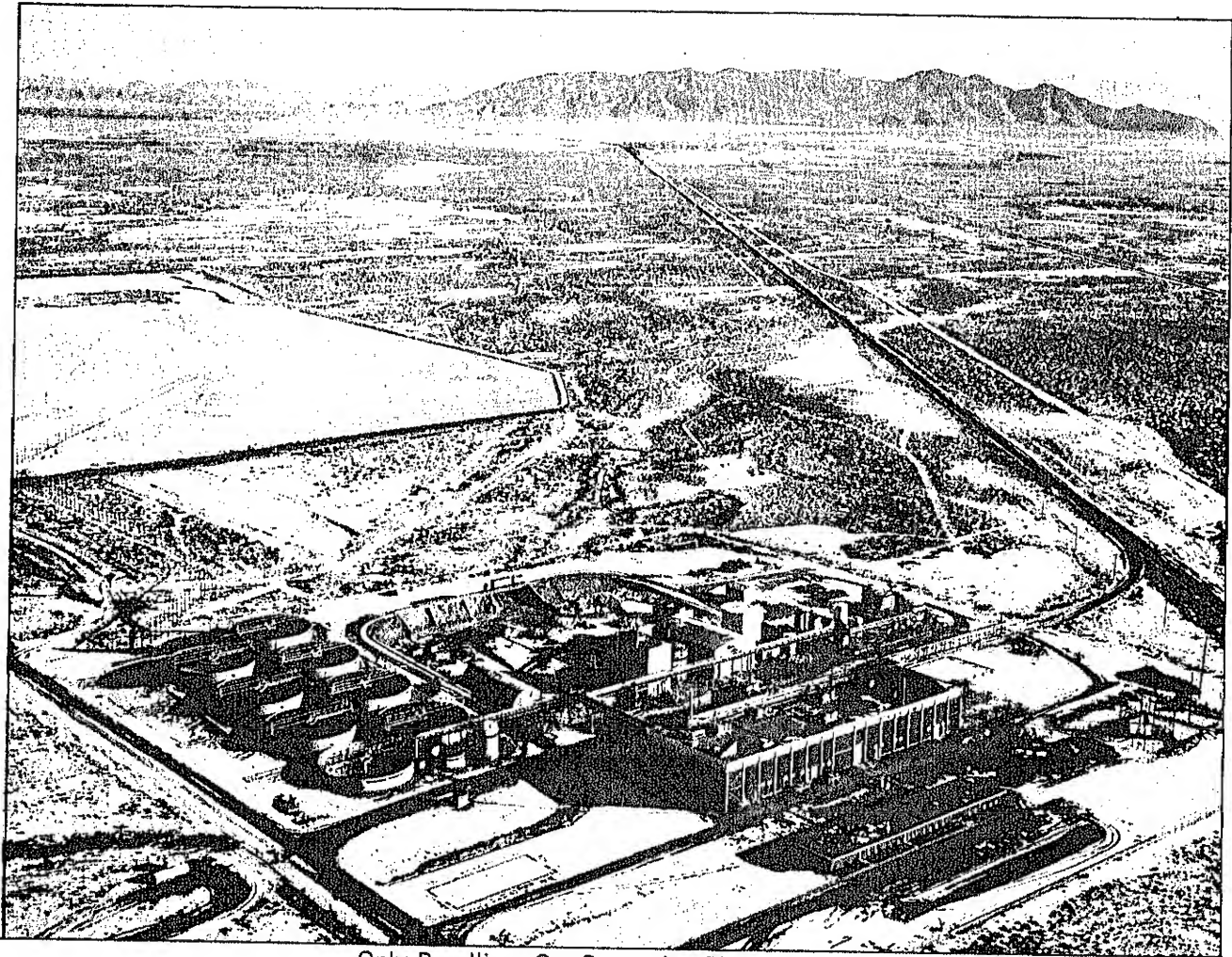
^g140,158 SDT of surplus manganese ore, metallurgical grade, were used to offset a shortfall of 70,079 ST of manganese, ferro, medium carbon. 103,367 SDT of surplus manganese ore, metallurgical grade, were used to offset a shortfall of 57,426 ST of manganese, ferro, silicon. 2,073 SDT of surplus manganese ore, metallurgical grade, were used to offset a shortfall of 829 ST of manganese metal, electrolytic.

^h31,795 AMA LB of surplus opium gum were used to offset 31,795 AMA LB of opium salts shortfall on a 1/1 basis.

13,028,661 LB of surplus tungsten ores and concentrates were used to offset a shortfall of 10,812,167 LB of tungsten carbide powder. 17,128,938 LB of surplus tungsten ores and concentrates were used to offset a shortfall of 15,743,509 LB of tungsten, ferro. 1,634,644 LB of surplus tungsten ores and concentrates were used to offset a shortfall of 1,391,186 LB of tungsten, metal powder.

Abbreviations

AMA LB	- Anhydrous Morphine Alkaloid (Pounds)	LCT	- Long Calcined Ton
AvOz	- Avoirdupois Ounce	LDT	- Long Dry Ton
FL	- Flask (76-Pound)	LT	- Long Ton
KT	- Carat	PC	- Piece
LB	- Pound	SDT	- Short Dry Ton
LB Cb	- Pounds of Contained Columbium	ST	- Short Ton
LB Co	- Pounds of Contained Cobalt	ST Ni+Co	- Short Tons of Contained Nickel plus Cobalt
LB Mo	- Pounds of Contained Molybdenum	ST V	- Short Tons of Contained Vanadium
LB Ta	- Pounds of Contained Tantalum	TrOz	- Troy Ounces
LB W	- Pounds of Contained Tungsten		



Only Beryllium Ore Processing Plant in the
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APPENDIX I

STRATEGIC AND CRITICAL MATERIALS STOCK PILING ACT

93 Stat. 319, as amended (50 U.S.C. 98 et. seq.)

SECTION 1. This Act may be cited as the 'Strategic and Critical Materials Stock Piling Act'.

FINDINGS AND PURPOSE

SEC. 2. (a) The Congress finds that the natural resources of the United States in certain strategic and critical materials are deficient or insufficiently developed to supply the military, industrial, and essential civilian needs of the United States for national defense.

(b) It is the purpose of this Act to provide for the acquisition and retention of stocks of certain strategic and critical materials and to encourage the conservation and development of sources of such materials within the United States and thereby to decrease and to preclude, when possible, a dangerous and costly dependence by the United States upon foreign sources for supplies of such materials in times of national emergency.

MATERIALS TO BE ACQUIRED: PRESIDENTIAL AUTHORITY AND GUIDELINES

SEC. 3. (a) The President shall determine from time to time (1) which materials are strategic and critical materials for the purposes of this Act, and (2) the quality and quantity of each such material to be acquired for the purposes of this Act and the form in which each such material shall be acquired and stored. Such materials when acquired, together with the other materials described in section 4 of this Act, shall constitute and be collectively known as the National Defense Stockpile (hereinafter in this Act referred to as the 'stockpile').

(b) The President shall make the determinations required to be made under subsection (a) on the basis of the following principles:

(1) The purpose of the stockpile is to serve the interest of national defense only and is not to be used for economic or budgetary purposes.

(2) The quantities of the materials stockpiled should be sufficient to sustain the United States for a period of not less than three years in the event of a national emergency.

(c) The quantity of any material to be stockpiled under this Act, as determined under subsection (a), may not be revised unless the Committees on Armed Services of the Senate and House of Representatives are notified in writing of the proposed revision at least thirty days before the effective date of such revision.

MATERIALS CONSTITUTING THE NATIONAL DEFENSE STOCKPILE

SEC. 4. (a) The stockpile consists of the following materials:

(1) Materials acquired under this Act and contained in the national stockpile on the day before the date of the enactment of the Strategic and Critical Materials Stock Piling Revision Act of 1979.

(2) Materials acquired under this Act on or after the date of the enactment of the Strategic and Critical Materials Stock Piling Revision Act of 1979.

(3) Materials in the supplemental stockpile established by section 104(b) of the Agricultural Trade Development and Assistance Act of 1954 (as in effect from September 21, 1959, through December 31, 1966) on the day before the date of the enactment of the Strategic and Critical Materials Stock Piling Revision Act of 1979.

(4) Materials acquired by the United States under the provisions of section 303 of the Defense Production Act of 1950 (50 U.S.C. App. 2093) and transferred to the stockpile by the President pursuant to subsection (f) of such section.

(5) Materials transferred to the United States under section 663 of the Foreign Assistance Act of 1961 (22 U.S.C. 2423) that have been determined to be strategic and critical materials for the purposes of this Act and that are allocated by the President under subsection (b) of such section for stockpiling in the stockpile.

(6) Materials acquired by the Commodity Credit Corporation and transferred to the stockpile under section 4(h) of the Commodity Credit Corporation Charter Act (15 U.S.C. 714b(h)).

(7) Materials acquired by the Commodity Credit Corporation under paragraph (2) of section 103(a) of the Act entitled 'An Act to provide for greater stability in agriculture; to augment the marketing and disposal of agricultural products; and for other purposes', approved August 28, 1954 (7 U.S.C. 1743(a)), and transferred to the stockpile under the third sentence of such section.

(8) Materials transferred to the stockpile by the President under paragraph (4) of section 103(a) of such Act of August 28, 1954.

(9) Materials transferred to the stockpile under subsection (b).

(b) Notwithstanding any other provision of law, any material that (1) is under the control of any department or agency of the United States, (2) is determined by the head of such department or agency to be excess to its needs and responsibilities, and (3) is required for the stockpile shall be transferred to the stockpile. Any such transfer shall be made without reimbursement to such department or agency, but all costs required to effect such transfer shall be paid or reimbursed from funds appropriated to carry out this Act.

AUTHORITY FOR STOCKPILE OPERATIONS

SEC. 5. (a) Except for acquisitions made under the authority of paragraph (3) or (4) of section 6(a), no funds may be obligated or appropriated for acquisition of any material under this

Act unless funds for such acquisition have been authorized by law. Funds appropriated for such acquisition (and for transportation related to such acquisition) shall remain available for a period of five fiscal years, if so provided in appropriation Acts.

(b) Except for disposals made under the authority of paragraph (4) or (5) of section 6(a) or under section 7(a), no disposal may be made from the stockpile unless such disposal, including the quantity of the material to be disposed of, has been specifically authorized by law.

(c) There is authorized to be appropriated such sums as may be necessary to provide for the transportation, processing, refining, storage, security, maintenance, rotation, and disposal of materials contained in or acquired for the stockpile. Funds appropriated for such purposes shall remain available to carry out the purposes for which appropriated for a period of two fiscal years, if so provided in appropriation Acts.

STOCKPILE MANAGEMENT

SEC. 6. (a) The President shall—

(1) acquire the materials determined under section 3(a) to be strategic and critical materials;

(2) provide for the proper storage, security, and maintenance of materials in the stockpile;

(3) provide for the refining or processing of any material in the stockpile when necessary to convert such material into the form most suitable for storage and subsequent disposition;

(4) provide for the rotation of any material in the stockpile when necessary to prevent deterioration of such material by replacement of such material with an equivalent quantity of substantially the same material;

(5) subject to the notification required by subsection (d)(2), provide for the timely disposal of materials in the stockpile that (A) are excess to stockpile requirements, and (B) may cause a loss to the Government if allowed to deteriorate; and

(6) dispose of materials in the stockpile the disposal of which is specifically authorized by law.

(b) Except as provided in subsections (c) and (d), acquisition of strategic and critical materials under this Act shall be made in accordance with established Federal procurement practices, and, except as provided in subsections (c) and (d) and in section 7(a), disposal of materials from the stockpile shall be made by formal advertising or competitive negotiation procedures. To the maximum extent feasible—

(1) competitive procedures shall be used in the acquisition and disposal of such materials;

(2) efforts shall be made in the acquisition and disposal of such materials to avoid undue disruption of the usual markets of producers, processors, and consumers of such materials and to protect the United States against avoidable loss; and

(3) disposal of such materials shall be made for domestic consumption.

(c)(1) The President shall encourage the use of barter in the acquisition of strategic and critical materials for, and the disposal of materials from, the stockpile when acquisition or disposal by barter is authorized by law and is practical and in the best interest of the United States.

(2) Materials in the stockpile, the disposition of which is authorized by law, shall be available for transfer at fair market value as payment for expenses (including transportation and other incidental expenses) of acquisition of materials, or of refining, processing, or rotating materials, under this Act.

(3) To the extent otherwise authorized by law, property owned by the United States may be bartered for materials needed for the stockpile.

(d)(1) The President may waive the applicability of any provision of the first sentence of subsection (b) to any acquisition of material for, or disposal of material from, the stockpile. Whenever the President waives any such provision with respect to any such acquisition or disposal, or whenever the President determines that the application of paragraph (1), (2), or (3) of such subsection to a particular acquisition or disposal is not feasible, the President shall notify the Committees on Armed Services of the Senate and House of Representatives in writing of the proposed acquisition or disposal at least thirty days before any obligation of the United States is incurred in connection with such acquisition or disposal and shall include in such notification the reasons for not complying with any provision of such subsection.

(2) Materials in the stockpile may be disposed of under subsection (a)(5) only if the Committees on Armed Services of the Senate and House of Representatives are notified in writing of the proposed disposal at least thirty days before any obligation of the United States is incurred in connection with such disposal.

(e) The President may acquire leasehold interests in property, for periods not in excess of twenty years, for storage, security, and maintenance of materials in the stockpile.

SPECIAL DISPOSAL AUTHORITY OF THE PRESIDENT

SEC. 7. (a) Materials in the stockpile may be released for use, sale, or other disposition—

(1) on the order of the President, at any time the President determines the release of such materials is required for purposes of the national defense; and

(2) in time of war declared by the Congress or, during a national emergency, on the order of any officer or employee of the United States designated by the President to have authority to issue disposal orders under this subsection, if such officer or employee determines that the release of such materials is required for purposes of the national defense.

(b) Any order issued under subsection (a) shall be promptly reported by the President, or by the officer or employee issuing such order, in writing, to the Committees on Armed Services of the Senate and House of Representatives.

MATERIALS DEVELOPMENT AND RESEARCH

SEC. 8. (a)(1) The President shall make scientific, technologic, and economic investigations concerning the development, mining, preparation, treatment, and utilization of ores and other mineral substances that (A) are found in the United States, or in its territories or possessions, (B) are essential to the national defense, industrial, and essential civilian needs of the United States, and (C) are found in known domestic sources in inadequate quantities or grades.

(2) Such investigations shall be carried out in order to—

(A) determine and develop new domestic sources of supply of such ores and mineral substances;

(B) devise new methods for the treatment and utilization of lower grade reserves of such ores and mineral substances; and

(C) develop substitutes for such essential ores and mineral products.

(3) Investigations under paragraph (1) may be carried out on public lands and, with the consent of the owner, on privately owned lands for the purpose of exploring and determining the extent and quality of deposits of such minerals, the most suitable methods of mining and beneficiating such minerals, and the cost at which the minerals or metals may be produced.

(b) The President shall make scientific, technologic, and economic investigations of the feasibility of developing domestic sources of supplies of any agricultural material or for using agricultural commodities for the manufacture of any material determined pursuant to section 3(a) of this Act to be a strategic and critical material or substitutes therefor.

NATIONAL DEFENSE STOCKPILE TRANSACTION FUND

SEC. 9. (a) There is established in the Treasury of the United States a separate fund to be known as the National Defense Stockpile Transaction Fund (hereinafter in this section referred to as the 'fund').

(b)(1) All moneys received from the sale of materials in the stockpile under paragraphs (5) and (6) of section 6(a) shall be covered into the fund. Such moneys shall remain in the fund until appropriated or until the end of the third fiscal year following the fiscal year in which they are received. Any such moneys remaining in the fund after the end of such third fiscal year that have not been appropriated shall be transferred to miscellaneous receipts of the Treasury. Any of such moneys that are appropriated shall be disbursed from the fund in the order in which they were covered into the fund.

(2) Moneys covered into the fund under paragraph (1) shall be available, when appropriated therefor, only for the acquisition of strategic and critical materials under section 6(a)(1) of this Act (and for transportation related to such acquisition).

(3) If so provided in appropriation Acts, moneys in the fund, when appropriated, shall remain available for a period of five fiscal years.

(c) All moneys received from the sale of materials being rotated under the provisions of section 6(a)(4) or disposed of under section 7(a) shall be covered into the fund and shall be available only for the acquisition of replacement materials.

ADVISORY COMMITTEES

SEC. 10. (a) The President may appoint advisory committees composed of individuals with expertise relating to materials in the stockpile or with expertise in stockpile management to advise the President with respect to the acquisition, transportation, processing, refining, storage, security, maintenance, rotation, and disposal of such materials under this Act.

(b) Each member of an advisory committee established under subsection (a) while serving on the business of the advisory committee away from such member's home or regular place of business shall be allowed travel expenses, including per diem in lieu of subsistence, as authorized by section 5703 of title 5, United States Code, for persons intermittently employed in the Government service.

REPORTS TO CONGRESS

SEC. 11. The President shall submit to the Congress every six months a written report detailing operations under this Act. Each such report shall include—

(1) information with respect to foreign and domestic purchases of materials during the preceding six-month period;

(2) information with respect to the acquisition and disposal of materials under this Act by barter, as provided for in section 6(c) of this Act, during such period;

(3) a statement and explanation of the financial status of the National Defense Stockpile Transaction Fund and the anticipated appropriations to be made from the fund during the next fiscal year; and

(4) such other pertinent information on the administration of this Act as will enable the Congress to evaluate the effectiveness of the program provided for under this Act and to determine the need for additional legislation.

DEFINITIONS

SEC. 12. For the purposes of this Act:

(1) The term 'strategic and critical materials' means materials that (A) would be needed to supply the military, industrial, and essential civilian needs of the United States during a national emergency, and (B) are not found or produced in the United States in sufficient quantities to meet such need.

(2) The term 'national emergency' means a general declaration of emergency with respect to the national defense made by the President or by the Congress.

SEC. 13. Notwithstanding any other provision of law, on and after January 1, 1972, the President may not prohibit or regulate the importation into the United States of any material determined to be strategic and critical pursuant to the provisions of this Act, if such material is the product of any foreign country or area not listed as a Communist-dominated country or area in general headnote 3(d) of the Tariff Schedules of the United States (19 U.S.C. 1202), for so long as the importation into the United States of material of that kind which is the product of such Communist-dominated countries or areas is not prohibited by any provision of law.

NOTE:

The Strategic and Critical Materials Stock Piling Act was amended July 30, 1979 (93 Stat. 319 (50 U.S.C. 98 et seq.)) by replacing sections 1 through 9, redesignating section 10 as section 13, and repealing section 11. By Executive Order 12155 of September 10, 1979, the functions vested in the President by sections 3 and 11 are transferred to the Director of the Federal Emergency Management Agency. The functions in sections 6 and 10 are transferred to the Administrator of General Services; those in section 8 are transferred to the Secretary of the Interior and the Secretary of Agriculture.

APPENDIX 2

CALCULATION PROCEDURE FOR FAMILY GROUPINGS OF MATERIALS

The following example is designed to help the reader perform and understand the conversions and calculations used in preparing summary lines for basic family groupings. The purpose in using basic units for each of the families or groups of materials is to place the content of the primary material into a common denominator for easier comparison.

In time of emergency, there would be a need for a mix of various forms of each metal element. The stockpile goal for a metal is a mix of products at various stages of upgrading. The goal is calculated by examining expected wartime requirements, availability, and domestic capacity to produce each of the upgraded forms.

There is a different factor for converting each of the forms into a common denominator, usually the basic metal equivalent. The conversion factors are different because process conversion losses vary. The calculations and conversions used for beryllium metal group are shown as an example. The figures used do not reflect the current inventory quantities.

The beryllium metal group has a surplus of beryl ore (11%BeO) and shortfalls of beryllium copper master alloy (BCMA) and beryllium metal. Beryl ore is a raw material used in producing the other two products. The surplus of beryl ore is used to offset the shortfall of the upgraded forms, but in different proportions for each product because of the product composition and the accompanying processing loss.

Commodity	Unit	Goal	Total Inventory	Excess	Deficit
Beryllium Metal	ST Be Metal	1,563	1,061		502
11. Beryl Ore (11% BeO)	ST	0	17,986	0	0
12. Beryllium Copper Master Alloy . . .	ST	16,710	7,387	0	0
13. Beryllium Metal	ST	895	229	0	502

PROCEDURE

1. Note that the available surplus of beryl ore is 17,986 ST.

2. Calculate the shortfall of BCMA.

16,710 ST Goal minus 7,387 ST inventory equals 9,323 ST shortfall.

3. Calculate the quantity of beryl ore required to offset 9,323 ST of BCMA.

9,323 ST BCMA times 1.3 equals 12,120 ST beryl ore.

4. Calculate the basic unit equivalent of the 9,323 ST of BCMA.

9,323 ST BCMA times 0.04 equals 373 ST beryllium metal.

5. Subtract the quantity of ore calculated to offset the shortfall of BCMA (3 above) from the total quantity of ore available (1 above).

17,986 ST ore minus 12,120 ST ore equals 5,866 ST of ore remaining.

6. The remaining quantity of surplus ore not used to cover the BCMA shortfall can now be used to offset part of the shortfall of beryllium metal. Convert the remaining ore to beryllium metal.

5,866 ST ore times 0.02801 equals 164 ST beryllium metal.

7. The total surplus beryl ore has been converted to the two upgraded forms, BCMA and beryllium metal, to cover the shortfall of these forms. The balance of excess ore is now zero.

12,120 ST ore converted to 9,323 ST BCMA

5,866 ST ore converted to 164 ST beryllium metal

Total 17,986 ST ore converted to BCMA and beryllium metal.

In converting the ore to beryllium metal, only one conversion was required. To convert the BCMA to the basic unit, i.e., beryllium metal, an additional conversion is needed. BCMA contains a nominal 4 percent beryllium metal. To convert the BCMA to beryllium metal, simply multiply 9,323 BCMA ST by .04 which equals 373 ST of beryllium metal.

The conversion to basic units is now complete.

12,120 ST ore to BCMA to beryllium metal equals 373 ST.

5,866 ST ore to beryllium metal equals 164 ST.

Total of 17,986 ST ore equals 537 ST beryllium metal.

EXAMPLE - BERYLLIUM METAL (ST)

	Beryl Ore (11% BeO)	Equivalent Basic Units
Excess to Goal	17,986	
Converted to Offset BCMA Shortfall (9,323 X 1.3)	-12,120	373
Balance	5,866	
Converted to Offset Beryllium Metal Shortfall (5,866 X 0.02801)	-5,866	164
Balance of Excess	0	
Total of Basic Units Offset		537

The balance of the family totals is shown in the table. Each of the forms of beryllium material has been converted to the basic beryllium metal units for easy subtraction and addition. Surplus material is shown as posi-

tive, shortfalls are shown as negative. The final balance for the family is 1,061 ST in inventory, 1,563 ST needed for the goal, leaving a shortfall of 502 ST beryllium metal.

Balance of Family Totals in Basic Units

	Inventory	Goal	Excess (+) Deficit (-)
Beryl Ore (11% BeO)	537	0	537
BCMA	295	668	-373
Beryllium Metal	229	895	-666
Total	1,061	1,563	-502

Factors Used for Converting Materials Into Family Groups

<u>Materials</u>	<u>Unit</u>	<u>Multiple Factor</u>	<u>Basic Family Unit</u>
Alumina	ST	0.518	Metal Equivalent, Aluminum
Aluminum Oxide, Fused, Crude	ST	0.85	Aluminum Oxide, Abrasive Grain
Bauxite, Metal Grade, Jamaica Type	ST	0.231	Metal Equivalent, Aluminum
Bauxite, Metal Grade, Surinam Type	ST	0.264	Metal Equivalent, Aluminum
Beryl Ore (11% BeO)	ST	0.028	Metal Equivalent, Beryllium
Beryllium Copper Master Alloy (4% Be)	ST	0.04	Metal Equivalent, Beryllium
Chromite, Chemical Grade Ore	ST	0.286	Metal Equivalent, Chromium
Chromite, Metallurgical Grade Ore	ST	0.286	Metal Equivalent, Chromium
Chromium, Ferro, High Carbon	ST	0.714	Metal Equivalent, Chromium
Chromium, Ferro, Low Carbon	ST	0.714	Metal Equivalent, Chromium
Chromium, Ferro, Silicon	ST	0.429	Metal Equivalent, Chromium
Columbium, Concentrates	LB	0.850	Metal Equivalent, Columbium
Diamond Dies, Small	PC	0.50	Carat
Manganese, Dioxide, Battery Grade	SDT	1.000	Manganese, Dioxide, Battery Grade, Synthetic
Manganese, Chemical Grade	ST	0.400	Metal Equivalent, Manganese
Manganese, Metallurgical Grade	ST	0.400	Metal Equivalent, Manganese
Manganese, Ferro, High Carbon	ST	0.800	Metal Equivalent, Manganese
Manganese, Ferro, Medium Carbon	ST	0.800	Metal Equivalent, Manganese
Manganese, Ferro, Silicon	ST	0.720	Metal Equivalent, Manganese
Opium Gum	AMA LB	1.000	Opium Salts
Tantalum Minerals	LB	0.85	Metal Equivalent, Tantalum
Tungsten Ores and Concentrates	LB	0.851	Metal Equivalent, Tungsten

